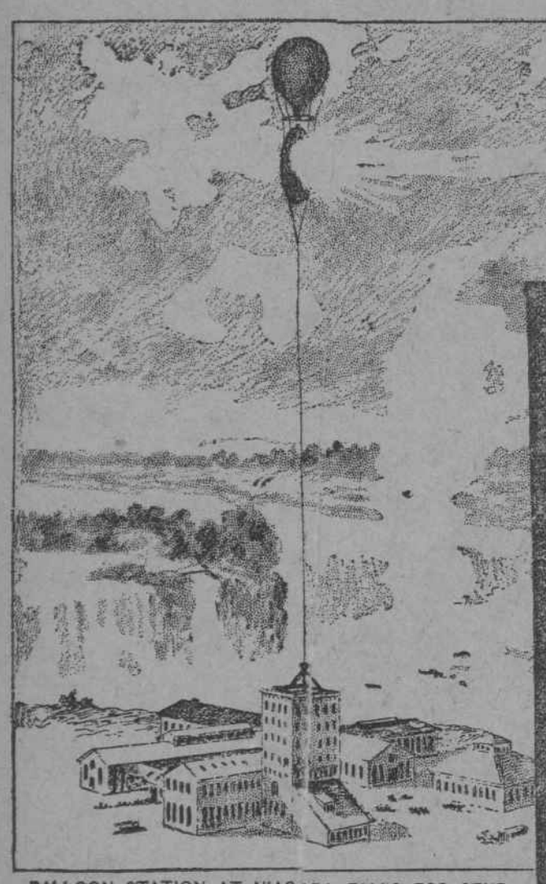
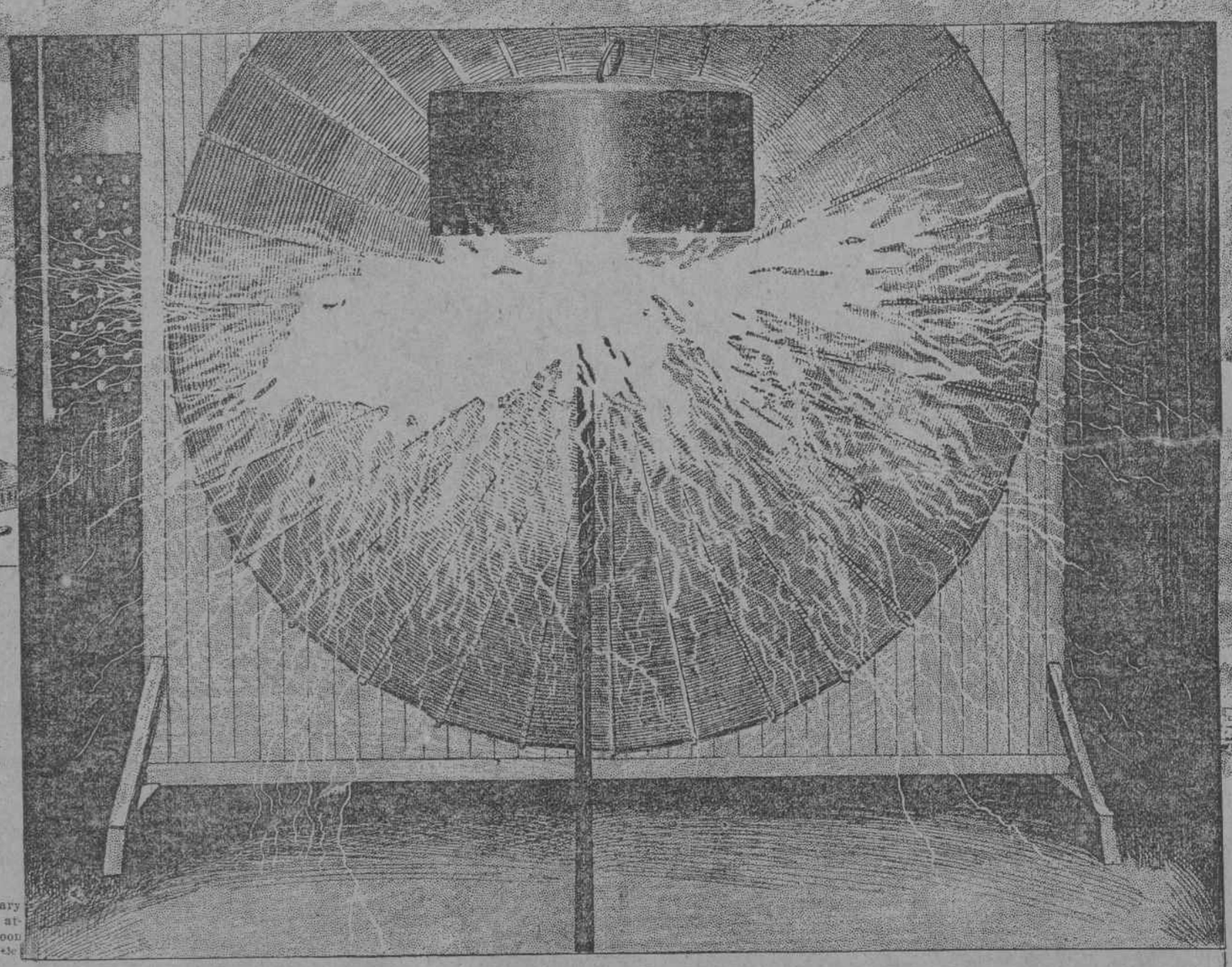
TESLA WILL FLASH NIAGARA'S POWER TO NEW YORK WITHOUT WIRES AND THE OCEAN'S TIDES TO BE TURNED INTO ELECTRICITY BY EDISON



BALLOON STATION AT NIAGARA FALLS FOR SENDING ELECTRIC POWER TO NEW YORK THROUGH AIR.



PHOTOGRAPH MADE AT MR. TESLA'S LABORATORY SHOWING HOW ELECTRIC POWER IS DISCHARGED THROUGH THE AIR WITHOUT WIRES.

BALLOON STATION AT NEW YORK FOR RECEIVING AND STORING NIAGARA'S POWER.

(Copyright, 1898, by W. R. Hearst.)

NIKOLA TESLA, who invented the present system of transmitting electric power over several miles of wires, now announces a discovery that seems as remarkable as did the telegraph or telephone when they were first introduced. It is the sending of the power of Niagara Falls through a stratum of the upper air to New York City. Besides this he proposes by the same method to trasmit this power across the ocean to Paris to run American exhibits at the Exposition of 1900. This invention is based upon a most remarkable laboratory experiment, in which it was found that rarefied air lost its insulating qualities and became a conductor to high alternating currents.

TESLA, the electrical wonder worker, now announces that he will transmit the power of Niagara Falls to New York without the medium of wires. He has devised a method of making the upper air a conductor of electricity.

The necessary mechanism will be attached and the balloon sent up captive to the exact height desired. The electrical apparatus suspended from the balloon will be very simple. It will consist of a large disk wound with very fine wires, mounted on a circular frame of some strong but light material.

In the centre of this will be a round metallic head, from which the electric power will be discharged. Here will terminate the two and a half million voltage current which has been sent up from the power station below through the metallic cable which holds the balloon.

A remarkable experiment which shows how this discharge and transmission of power will take place was photographed in Mr. Tesla's laboratory a week ago. It was first reproduced in the Electrical Review, the popular electrical weekly, which printed at the same time an elaborate scientific article and editorial commendation of Mr. Tesla's discovery.

This new kind of electricity, which can be transmitted through great distances in the upper air, is quite different from the lightning that dashes through the sky with a flash and roar of thunder. Its effect on the eye is more like the aurora borealis, which gives out a pale glimmer.

If the whole power of Niagara Falls were to be transmitted from a single station near the Falls to New York, there would be no blinding flash and deafening noise.

By night there would be simply a faint bluish illumination on the big round wire screen suspended high in the air above Niagara Falls, and extending from this would be slender beams of dim light reaching toward the distant electric station above New York.

These streamers of light across the sky would quaver and advance and recede like the tongues of the Northern Lights that shoot up toward the horizon on cold, clear Winter nights. By day the action of these electric waves through the heavens would be invisible.

When this power is flashed through the air to New York, it will be received by a similar terminal, a balloon and disk with a metallic cable leading down to a mammoth storage battery plant. Here the power will be stored as in an enormous reservoir.

By means of transformers of varying power, it will then be dealt out in any kind of current, from the weakest kind necessary to make little incandescent lights, to powerful voltages that can run vast street car systems, turn great newspaper presses and all other kinds of the most ponderous machinery. It will then be as if Niagara Falls were at our very doors.

This great discovery had its origin in a laboratory experiment. Air when enclosed in a vessel and rarefied lost much of its insulating quality. It became, in fact, a true conductor of high resistance.

When this was discovered the problem arose of generating a kind of electricity suited to this new conductor. The common low voltage currents would not do it. But by immensely increasing the strength of the current and making it alternate at the rate of hundreds of thousands of times per second it passed through the air as through metal.

BY NIKOLA TESLA.

I AM now working on plans for terminal stations for transmitting the power of Niagara Falls directly to New York City through the air without wires. This is simply one step in advance of wireless telegraphy. I worked out the principles of that several years ago.

I then became convinced that the transmission of power could be accomplished in a similar way. I encountered a new set of practical difficulties, but have succeeded in building machines producing high alternating currents that can be transmitted through air of a certain density, or rather rarefaction. To obtain this condition of atmosphere, that virtually becomes a stratum of conduction, it is only necessary to attain a certain elevation, either by establishing plants on high mountain tops or by using balloons.

When the plants have been put into operation in Niagara Falls and New York I shall make plans for a station to be erected in Paris, for the transmission of power across the ocean, to run machinery in the Exposition of 1900.

The invention has been so far worked out that Mr. Tesla is now making plans for plants and terminal stations to be erected in this city and at Niagara Falls. When these are in thorough operation he expects to put up a station in Paris and furnish power to run the American machinery of the Exposition of 1900.

Astounding as may seem the idea of transmitting power hundreds and thousands of miles Mr. Tesla says that the process is very simple. He claims that by this new method distance is as completely annihilated as by the telegraph wire or cable. He says power transmission without wire is only one step in advance of wireless telegraphy, which is now an accomplished fact.

Mr. Tesla has kept this invention secret until he obtained his foreign patents in England, France, Germany and other countries. These have just been granted, and he now makes a public statement for the first time.

It was Nikola Tesla who invented the electrical transformer which made possible the transmission of power over several miles. It was regarded as wonderful when the power was first carried five or ten miles. Now it is conveyed over twenty miles with ease.

But the great cost of copper cables and the loss of power when still greater distances were attempted have made it commercially impracticable.

It is Tesla again who steps in when his former invention has reached its limit and discovers an entirely unknown quality in electricity. By this means he claims that power can be transmitted long distances as easily as the telegraph can be operated.

Air has heretofore been considered a non-conductor or insulator, but Mr. Tesla has discovered that it can be converted into a true conductor, though of high resistance. To do this, it is necessary to rarefy it to one-third its normal density at sea level.

Through this rarefied air a current of enormous voltage and rapid alternations will pass as through a copper cable.

When Mr. Tesla found out this new relation of air and electricity, he saw that it opened up an entirely new field for electricity. Long-distance transmission of power has been the great obstacle in electrical development thus far. But this difficulty was overcome at one step by this new discovery.

To obtain the air that could be transformed into a conductor one-third the density at sea level, it was merely necessary to rise above the earth to a height of five miles. That is above the region of clouds in the zone of perpetual frost and beyond the influence of the fierce earth currents of wind.

This altitude is easily attained by bal- Only two months ago Stanley Spen- d Dr. Berson went up to a distance and a quarter miles from the earth on.

Tesla says it will not be necessary man to go up in this balloon

MAMMOTH TIDE-POWER PLANT TO BE ERECTED IN NEW YORK BY THOMAS A. EDISON, JR., FOR MAKING LIGHT, HEAT AND POWER.

(Copyright, 1898, by W. R. Hearst.)

AT the same time that Nikola Tesla is preparing to transmit the power of Niagara Falls to New York without wires Thomas A. Edison, Jr., the son of the famous Wizard of Menlo Park, brings out a great electrical project. He is now drawing up plans for an enormous plant that is designed to convert the tide currents of New York harbor into electricity and compressed air power.

Mr. Edison last week made the sketch for the Journal of the tide water plant from which the accompanying illustration was made. It is the first authentic picture of his new invention which has been made public.

This tide power plant is to be built on an enormous scale and capable of generating hundreds of thousands of horse power. So large will be the machinery that the big power houses now in operation in this city will be dwarfed in comparison.

Some of the cylinders for compressing air will be as large as a big locomotive boiler. The metallic storage cylinders in which the air will be compressed are to be many times the height of a man. The pipes through which the tide currents will flow will be fifteen feet in diameter and one hundred feet in length. The present plans for the plant provide for a building five hundred feet long and three to four hundred feet wide, to be built directly over a tide channel.

The exact location of the plant is not yet announced, as negotiations for the site have not yet been closed.

For several months young Mr. Edison has been at work upon this invention. He has abandoned the theory of utilizing wave motion, which he was experimenting with last year. He has come to the conclusion that the true secret of extracting power from the ocean is to utilize the powerful tide currents that flow directly past New York.

Curiously enough, the plan is similar in principle to that which was employed in Colonial days in the old-fashioned tide mills which ground grain and sawed logs. A mill was built on a tide channel, and the force of the current used to make the power. In those days, however, it was a water wheel that was turned, while Mr. Edison proposes to make the tide current drive pistons and store up compressed air and drive electric dynamos.

The tests of this new process made in San Francisco have been so successful that Mr. Edison is organizing a million dollar company at his offices at No. 38 Wall street, and is making a move to obtain franchises to put up an enormous plant in New York.

Mr. Edison's device is a new application of the walking beam mechanism used on ferryboats. In a channel where the tide runs strong stone foundations will be built, and on these will be mounted on pivots huge metal pipes fifteen feet in diameter and one hundred feet long. As the swift tide current pours through one of these pipes it will force upward a piston rod into a compressed air cylinder above, and at the same time one end of the big pipe will fall downward, still further forcing upward the piston rod.

Simultaneously the other pipe, which has been in the lower inclined position, will be forced upward to a horizontal position by an automatic device. The water flowing through it will push upward the compressed air piston attached to it, as in the case of the other pipe. In addition to the force exerted by the onward motion of the current, the up and down pumping motion will operate another set of pistons.

The mechanism is of the reversible sort. When the tide changes from flood to ebb and the current flows in the opposite direction the apparatus will work equally well. In this way an almost constant operation of the machinery will be kept up. During the short interval of rest the compressed air collected in storage cylinders will carry on a continuous operation of the power plant.

One of the most singular parts of Mr. Edison's tide plant will be that he will turn out two different kinds of power. One will be compressed air, which will naturally be drawn directly from the storage cylinders. This will be conducted away from the plant in underground tubes for delivery wherever required.

Electricity will be the other form into which this tide power will be converted. This will be made by turning the compressed air into triple expansion engines and using it instead of steam to run dynamos. From the dynamos the electricity will be drawn off by wires and distributed for light, heat and power in the usual way.

So the unusual spectacle will be presented of a plant turning out electricity from the wires emerging from the roof and compressed through its underground tubes.

It is very plain that such an easy method of making electricity without the use of fuel will be a great economic saving in cost. The making of compressed air in the same way is expected to open up an entirely new field for its use. It can be used at once in the present tube systems for transmitting mail and for operating the pneumatic tubes in department stores and elsewhere at greatly reduced cost.

Mr. Edison proposes to introduce compressed air for heating houses and offices. To do this it will be necessary to heat a small pipe by gas or oil, which can be done in a few minutes. The hot compressed air, when drawn off through a valve, will instantly warm the whole room.

The young inventor is confident that many other uses will be found for compressed air, the supply of which can be made practically unlimited.

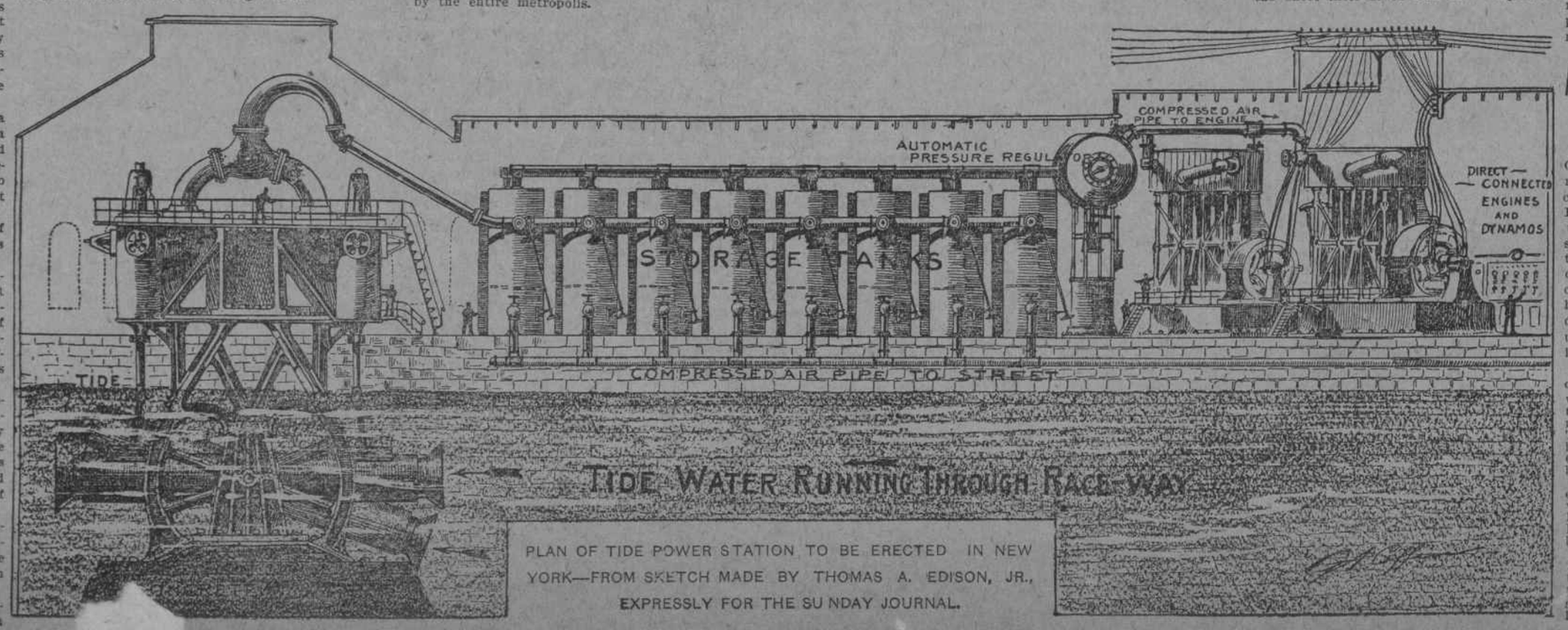
HOW I SHALL USE THE TIDES AS A WATER POWER.

BY THOMAS A. EDISON, JR.

THE tide power machinery which I have recently perfected is quite different from any tide motor tried heretofore. It consists simply in filling a tide channel with huge pipes, through which the strong current will pass just as a river current rushes through a mill race and turns turbines. But in the tide channel water power plant the machinery is so built that it operates when the tide is flowing in either direction, on the ebb or the flood.

The tide power first makes compressed air. This will be conveyed in tubes to any distance and used for any purpose. But the tide power plant for which I am making the plans, and which will be erected in New York, will also convert the compressed air into electricity, and be distributed in the usual way for light, heat and power.

There is no limit to the amount of power that can be made by utilizing the tidal power in the immediate vicinity of New York. It is more than sufficient to furnish all the power, light and heat required by the entire metropolis.



TIDE WATER RUNNING THROUGH RACE WAY

PLAN OF TIDE POWER STATION TO BE ERECTED IN NEW YORK—FROM SKETCH MADE BY THOMAS A. EDISON, JR., EXPRESSLY FOR THE SUNDAY JOURNAL.

A Curio-Hunter in Politics.

Robert Fullerton, the president of the Old Curiosity Club at No. 219 Third avenue, has emerged from his musty, dust-covered antiques and has gone into politics. He is a candidate for the Assembly in the Eighteenth Assembly District, and stands flat upon the Chicago platform. For the time being Mr. Fullerton has left the cobweb of traditions that surround his curious little corner, where Dickens might have found some of his characters, and is devoting his time to spellbinding instead of unfolding the history of some ancient painting or mouldy manuscript.

It was in his Curiosity Shop that many of Jay Gould's letters to John Sherman were found. There also came to light a thousand requests for passes that the inner circle had sent to Chauncey Depew. The Dis de Bar correspondence popped into his possession and the old Beefsteak Club was founded on a rack laid by Fullerton.

Many of "our first families" have purchased old portraits of him to adorn their walls, under the guise of "ancestors." Fullerton does not deceive his purchasers. But if they wish to deceive themselves it is an entirely different matter.

An original Raphael, a Valasques and a Meissonier have turned up in his institution and he says that time will bring him an Angelo. But just at present he is more anxious to get an idea on how the balloon ing will go on election day.